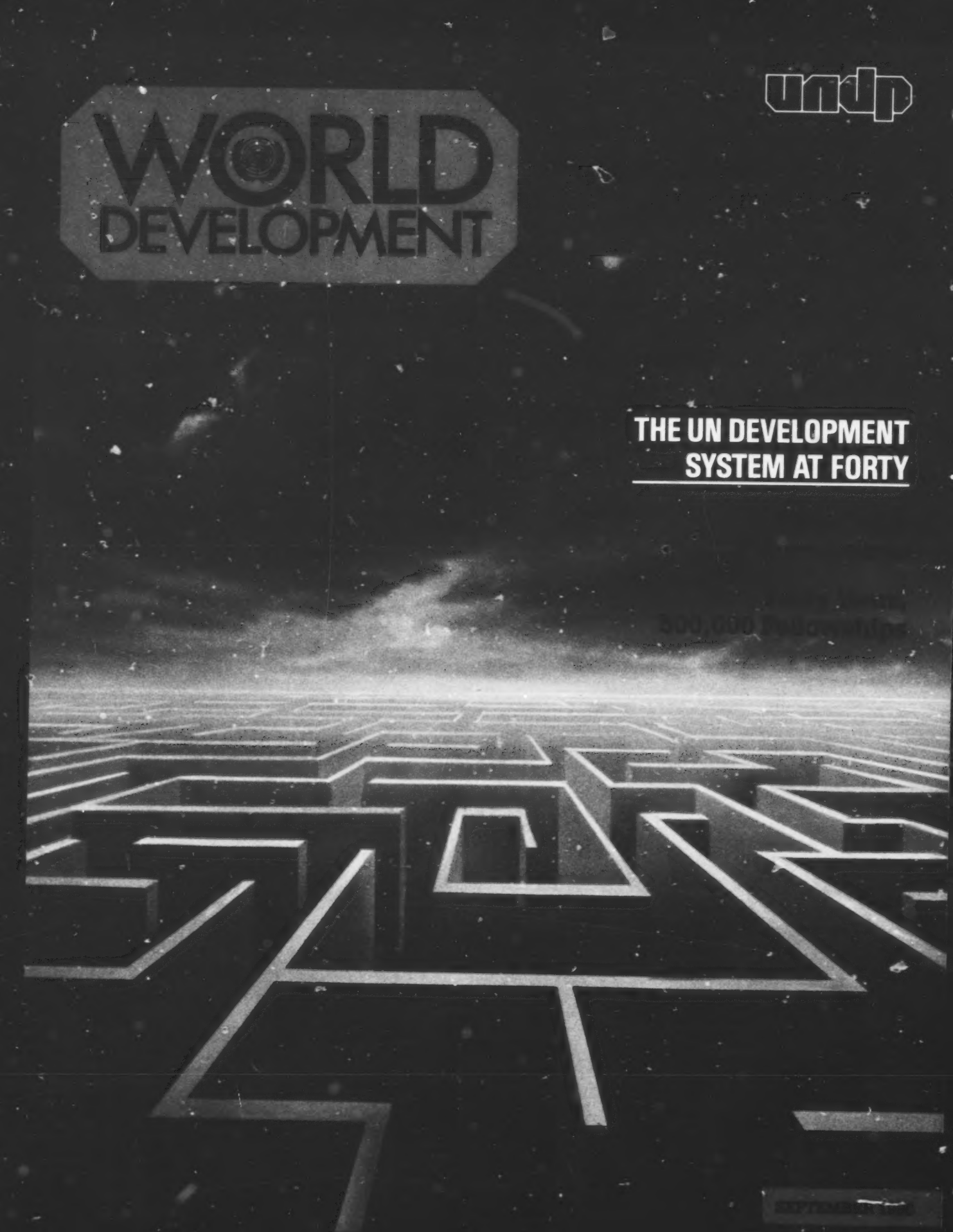
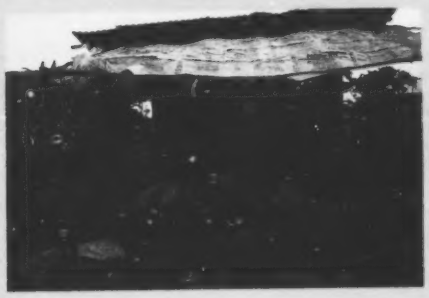
undp

WORLD DEVELOPMENT

THE UN DEVELOPMENT SYSTEM AT FORTY



YOU CAN BE A PARTNER TOO



Three years ago, Kuila Kailahi's husband left Tonga with dreams of a better life and promises to send home the bulk of his paycheck from the United States. Mrs. Kailahi hasn't heard from him since. Abandoned with six children, she and her family lived in two coconut-drying huts—hardly bigger than packing crates.

Today, the Kailahi family has a new home. It has a concrete floor and iron roof that offer protection from fierce tropical storms. More than 100 such homes for destitute families in Tonga have been built with help from the Village Women's Development Programme. When its funds ran low, this local voluntary organization was awarded a $6,000 grant from UNDP's Partners in Development Programme.

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WORLD DEVELOPMENT

VOL.3, NO.5

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FORTIETH ANNIVERSARY

Charting a Future Course

Forty years after the launching of the UN development system, the early idealism of its founders has given way to a spirited debate about the system's future.

By Lois Jensen

Geneva, Switzerland—Forty years ago, on 12 June 1950 in Lake Success, New York, 54 nations made their first pledges of funds for what David Owen described as a "daydream in a few adventurous minds." Mr. Owen was the first head of the EPTA, the Expanded Programme of Technical Assistance, one of the predecessor organizations of the United Nations Development Programme (UNDP). "Its greatest merit," said Mr. Owen, "may be seen by future historians to lie in its demonstration that international co-operation for economic development is a practical working proposition, and it proved that some dreams can come true."

The mood at the time was "heady with optimism," says Margaret Joan Anstee, one of UNDP's most distinguished veterans, now Director-General of the UN Office at Vienna. "It was all part of a brave new world," she says, recalling her assignment in Manila in 1952. "Because the scars of war were still visible, we all felt somehow that we were helping to reconstruct that world."

The past four decades are a record of enormous accomplishments for the developing countries. In areas such as literacy, nutrition and life expectancy, gains have been made that took the industrialized world almost a century to achieve. But there remain wide economic gaps between rich and poor. "Among the large financial institutions," says Miss Anstee, "there was a feeling that with a few doses of capital, countries would take off. Then they realized it wouldn't happen that way."

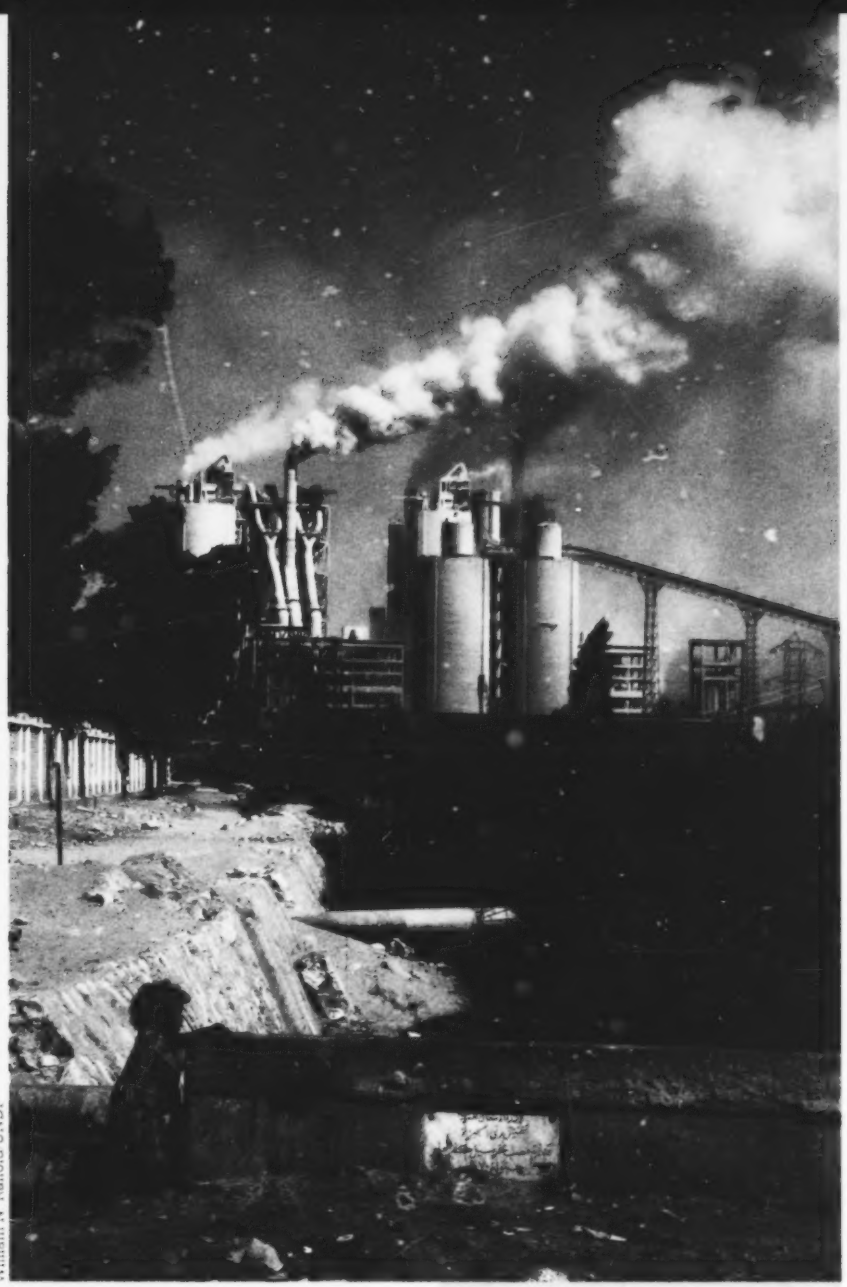
For many countries of the South, this is a time of growing political turbulence, exacerbated by heavy debt, worsening terms of trade and often radical economic adjustments. "Until issues like international debt, trade and monetary policies can be handled in a more rational way," says Raúl Taladrid Suárez, Vice President of Cuba's State Committee for Economic Co-operation, "conditions in the developing world will only get worse."

For UNDP and the multilateral system, it is a time of questioning and reassessment. Demands for technical co-operation have become more sophisticated and complex. At the same time, there is growing recognition of the need to tailor such assistance to local social and cultural realities. Projects and goals that seemed simple on the surface did not turn out as expected. "In the past we were optimistic, knowing that our actions were based on what we thought were rational certainties," says Jan Pronk, Minister for Development Co-operation from the Netherlands. "Today I am afraid we have reached an era of doubt."

In the beginning, contends Carlos Fortin, there was the naive expectation that the gap with the North could be bridged very quickly. Mr. Fortin is

Lois Jensen/UNDP

> ***"There was a feeling that with a few doses of capital, countries would take off. Then they realized it wouldn't happen that way."***
>
> ***Margaret Joan Anstee***



William N. Reiford UNDP

New factories rise outside Cairo.

> ***"There was industrialization, and, in some cases, spectacular growth."***
>
> ***Carlos Fortin***

Director of Programmes for the South Commission, an independent organization set up in 1987 to look at Third World issues from a global perspective. "There *was* industrialization and, in some cases, spectacular growth," he says. "But at the same time the pattern of development that was adopted tended to create inequality."

Early development models presumed that the developing countries had to somehow imitate the experience of the industrialized world. "The goal was to achieve the consumption levels of people living in the United States," says Mr. Fortin, "which was untenable from many points of view—not the least environmentally."

In talking with a number of development professionals, many of whom attended the June session of the UNDP Governing Council here in Geneva, several common threads have emerged. One is the recognition that economic growth alone cannot guarantee development. Another is that, despite increasing global interdependency, differences between countries and regions are becoming more acute. Discarded are fixed "models" of development that can be applied across the board. Instead, a new emphasis on "human development" is taking hold. It is an approach based not on the acquisition of material wealth, but on the capacity of people to shape their own lives. Finally, greater accountability is being demanded of the multilateral system and of the developing countries themselves.

Mr. Pronk sees the 1990s as becoming an era of social renewal, one which will tackle issues of inequality and alienation, which he says affect rich countries as well as poor. He also stresses the need for a closer link between development assistance and larger global issues, such as the environment, trade and international monetary issues, which he says UNDP and the multilateral system should help forge.

"One thing that the debt crisis has shown is the fragility of the social sec-

Louise Gubb/UNDP

Food aid in Ethiopia.

tor in most countries," says Miss Anstee, "largely because it was never given the priority it deserved." According to Mahbub ul Haq, principal author of UNDP's first annual *Human Development Report*, the social costs of adjustment may be far heavier than many people anticipated. "The social data now emerging, much of it dating back to 1985, shows that health and education budgets have been cut in half in many countries," says Dr. Haq. "School enrolments are leveling off and advances in infant survival have slipped."

This erosion of social services in what many call the "lost decade" of the 1980s, is a major force behind a return to a more human-centred approach to development. In one sense it is a return to an earlier idealism, to an approach that attempts to give people some control over their own lives, which, in many cases, was inadvertently lost in the development process itself. "All too often aid has served to undermine development through the creation of dependency," says Stephen Browne of UNDP's Regional Bureau for Asia and the Pacific, author of *Foreign Aid in Practice*. "It has been used to support a system of political control, based on the paternalistic notion that people can 'attain' development as the passive recipients of public services or physical assets."

> ***"All too often aid has served to undermine development through the creation of dependency."***
>
> ***Stephen Browne***

For UNDP, human development means a strong commitment to grassroots approaches and a refocusing of energy in areas such as education, health, nutrition, shelter and employment. It also means helping countries create policies that encourage their own citizens to become agents of change. "Events in Eastern Europe show that people want to take charge of their own economic and political lives," says Dr. Haq.

The real challenge, he adds, will be to translate the idea of human development into concrete strategies at the country level. As a follow-up to this year's *Human Development Report*,

R. Bossu/Sygma

The wall crumbles in East Berlin.

> ***"Events in Eastern Europe show that people want to take charge of their own economic and political lives."***
>
> ***Mahbub ul Haq***

UNDP is offering technical assistance to help countries gather the relevant data to define their own human development goals for the 1990s. Already, 15 countries have requested such assistance, and consulting missions are being organized in collaboration with UNICEF and the UN Office at Vienna. According to Dr. Haq, the missions are being led by some of the world's top development thinkers.

UNDP is also taking a more active role in policy dialogues with developing country governments, "not in the sense of setting conditions," says Dr. Haq, "but in laying out the relevant facts and policy options so that countries can choose better."

For Miss Anstee, the most important accomplishment of the 1990s would be to put social concerns at the centre of national development strategies. "Not as a palliative to offset the costs of adjustment," she says, "but as actual targets which are to be met over the medium to long-term."

"One of the things we only dimly perceived in the 1950s," says Miss Anstee, "was the multi-disciplinary nature of development—that everything is connected to everything else. How to handle this multi-disciplinary approach is another of the issues we must tackle in the 1990s. We've got to get away from this idea of agency territories, to somehow work out this notion of partnership and teamwork."

Ajit Mozoomdar, former Director of the World Bank's Economic Development Institute, now a professor with the Centre for Policy Research in New Delhi, takes a less global, more pragmatic view. "Development in my mind *is* complex, *is* piecemeal," he says, "and every country has to find its own way. This search for theoretical solutions and policy analysis is overdone. It is time for country-by-country, problem-by-problem analysis and the extent to which the UN can contribute to this is good. The great weakness of the international system is that it is always looking for new approaches."

According to Akio Matsumura,

Executive Director of the Global Committee of Parliamentarians for Population and Development, what is lacking in the UN today is a vision of what the world community is working towards. "One of the things that the UN risks losing is that moral image that was part of its original Charter, a sense of where we could be 50 years from now. If the UN loses that, what real power does it have?"

Many, including Mr. Matsumura, believe that leadership will be key to the resolution of global problems in the coming decades. Some are pessimistic that this leadership will emerge. "Prosperity itself has created enormous illusions," says Amir Habib Jamal, who was a leading government figure in his own country of Tanzania for many decades, and is now Permanent Representative to the UN in Geneva. "I hope I am wrong, but I do not believe we are going to get the same kind of leadership we had after the Second World War, when the pain, for everybody, was very real, and the thinking very clear."

Among donor governments, there is a distinct sense of frustration in finding workable solutions to the enigma of development, especially among the least developed countries. Compounding this are new global problems such as drugs, AIDS and the destruction of the environment. Some major donors, like Norway, remain convinced that the multilateral system is best equipped to deal with these problems. Others, like Canada, the Netherlands, and the United Kingdom, contend that the system must be reformed. "Forty years from its birth, there is rising dissatisfaction with the impact of much UN and UNDP assistance, voiced by recipients and donors alike," says Lynda Chalker, Minister for Overseas Development from the United Kingdom.

Along with a new set of challenges for the system as a whole, there is wider recognition that lasting solutions will only be those found by the developing countries themselves. "In the 1970s I thought that the mistakes of Third World governments were also somehow our mistakes," says Mr. Pronk. "Twenty years later things are different. We have a new political elite in developing countries who should be held accountable. We can and ought to be more critical in order to be responsible donors in terms of the impact we are having on people."

It is a view shared by many developing countries. "The South, which will represent four-fifths of humanity by the year 2000, must regard itself as a major actor in creating the world of the 21st century, and to accept both the responsibilities and obligations that that involves," says the South Commission's Mr. Fortin. "But it must also demand the kind of presence and influence that is necessary in order to make its voice heard." ■

> ***"In the past we were optimistic, knowing that our actions were based on what we thought were rational certainties. Today, I am afraid, we have reached an era of doubt."***
>
> **Jan Pronk**

Lois Jensen/UNDP

Maureen Lynch/UNDP

Jacky Radifera is in charge of tracking UN Fellows posted worldwide.

Small Investments, Big Returns

By Cherie Hart

In 40 years, UNDP has helped train 500,000 Fellows

Milton Grant/UN

Prime Minister Hage Geingob of Namibia, a former UN Fellow, addresses the General Assembly.

United Nations, NY—Jacky Radifera's face is barely visible behind the stack of yellow files on his desk. Shelves, chairs and most of the floor space in his office are also heaped high with brimming folders. "Sorry this place is so crowded with people," he apologizes to his visitor. "Let me get some of these folks out of your way." He removes a dozen folders from a chair and carefully places them on the floor. Reacting to the puzzled look on his guest's face, Mr. Radifera remarks that each of these files is a different person who could bring great change to the world.

In fact, each folder contains the complete personal and professional background of individuals who are on study fellowships supported by the United Nations. During the last four decades, the United Nations Development Programme (UNDP) has financed over 500,000 Fellows from more than 150 developing countries to undertake training in over 100 host countries. UNDP spends over US$150 million a year on fellowships.

Generally, study tours are designed as a training component of UNDP-funded technical co-operation projects. Some fifteen specialized UN agencies, including the UN Department of Technical Co-operation for Development (UN/DTCD), administer fellowships in all fields related to economic and social development. Mr. Radifera is Chief of Fellowships Service for UN/DTCD, the oldest continuously running office in the UN system. UN/DTCD has administered over 80,000 fellowships since 1947.

UN fellowships hone skills and add to the professional pool of knowledge in the developing world in a wide range of disciplines, from ocean economics and water resources to mining, civil aviation and artificial intelligence. The study awards, which range from 30 days to several years, are intended for candidates already entrusted with jobs vital to the development of their countries, or who are about to be promoted into such posts.

"When a country recommends someone to be trained for a project, we help them find an appropriate training centre, negotiate with the host institutions and oversee the fellowship," says Noelle Pineau, Chief of the Fellow-

John Isaac/UN

Theo-Ben Gurirab, Namibia's Foreign Affairs Minister, received three UN fellowships.

ships Unit for UNDP's Office for Project Services. "All we can hope for is that recipients will return home and share what they have learned with their colleagues."

Some UN Fellows have gone on to distinguished positions in their countries. Jigmi Thinley, for example, received a Master's Degree in Public Administration on a fellowship to Pennsylvania State University in 1980. His career in Bhutan then progressed from Director of Education, to Deputy Secretary of the Department of Manpower, to Bhutan's Ambassador to the UN. He is now the Administrator of Eastern Bhutan.

Hage Geingob, who came to New York in 1970 on a fellowship for a Master's Degree in Political Science at the New School for Social Research, was elected Prime Minister of newly independent Namibia. Under three separate fellowships from 1963-1970, Theo-Ben Gurirab received a high school diploma, a Bachelors and a Master's degree in the US. He is now Namibia's Foreign Affairs Minister.

Fellowships continue to be an important educational tool for independent Namibia. Last year, the UN Fund for Namibia fielded 1,200 students, many refugees outside the country.

Twegatsetwa Tshoombe is one of the thousands of Namibians who fled the country as a teenager in the mid-1970s. Today, she is a 28-year old journalism student at the University of Wisconsin. Ms. Tshoombe left Namibia for Zambia at age 15 because she could no longer endure the beatings and police brutality she witnessed at her school.

In Zambia, she wound up in a camp run by the South West Africa People's Organization (SWAPO). She worked as a secretary and then a reporter in the information and publicity department of SWAPO. In 1986, she applied for a UN fellowship to study journalism at Wisconsin. "I felt that the media would have an important role in independent Namibia," she says. "Only through education can people of different tribes and colour be united. Political independence is nothing without unity."

Although she has been away from home for well over a decade, she is anxious to finish her four-year degree next year and return to Namibia. "It is my duty to help build up the new country," she says. "I am definitely scared about how I will adjust, but I imagine over and over how great it will feel to see my parents again. Then I know that I must return."

A small number of Fellows never return. Recently, one Romanian finished a two-month training course in the field of petroleum engineering at the University of Southern California. He never showed up for his flight home.

"The brain drain used to be more of an issue in the early years of the programme," says Dirk Salomons, who was a fellowship officer for the Food and Agriculture Organization of the UN from 1970 to 1973. "Then, the study tours were longer, usually several years to get an advanced degree. After spending four years at Cornell University, for example, it was not always easy to

return home to a small village, or a job in the bush."

Over the last four decades, the nature of the programme has shifted as developing countries established more universities of their own. Fellowships now tend to be for short-term, highly specialized training. "This shift began in the mid-1970s," says Mr. Salomons. "Today, rather than send their young people overseas for a basic science degree, many countries now want them trained in a specific high-tech area such as artificial insemination or enzyme production."

The fellowships have evolved in other ways since their inception 40 years ago. The growth of educational institutions in developing countries has meant that an increasing number of fellows can receive fellowship training in the developing world. "Fifteen years ago, 70 per cent of the fellowships that UN/DTCD administered took place in the US, the UK, Canada or France," says Mr. Radifera. "Now approximately half of them are in Côte d'Ivoire, India, Egypt, Thailand and Morocco."

Mr. Salomons believes that this increasing emphasis on South-South co-operation between developing countries has definitely enhanced the fellowship programme. "Before, a student would often complete his studies in a developed country only to find that his newly acquired technical knowledge could not be put to use at home," he says. "Either the lab equipment was not comparable or a job was simply not available to suit his or her new skills. We learned that a veterinarian from Afghanistan who received training in India, for example, was far better suited for work back in Kabul than one who was educated in the US."

Culture shock is a reality that can never be underestimated when a person is transplanted into another country, says Mr. Salomons. "Language is one of the main hurdles in these fellowships," he says. "An Indian speaking English will have problems understanding a Texan speaking English."

John Isaac/UN

Jigmi Thinley, the Administrator of Eastern Bhutan, received a Master's degree as a UN Fellow.

Narayan Tiwari solved this problem within a month after arriving at the University of Southern California from his native Nepal in 1972. He came to the US on a seven-month fellowship to study tax administration, auditing and assessment. "My professor spoke English, and I spoke English, but we certainly weren't communicating with each other," recalls Mr. Tiwari. "So I bought a television and watched it every free moment. In a few weeks, I figured out the American sound." Mr. Tiwari is now the Director-General of the Department of Taxation for Nepal.

All over the world, UN Fellows have made a difference in the lives of countless others. An Egyptian Fellow designed a new water distribution system, an Indian stopped erosive seepage under a major dam, a Chilean designed a solar-powered fruit drying device. Each accomplished these feats with the knowledge gained from overseas training. "A development project can supply equipment and experts," says Ms. Pineau, "but training is the most enduring ingredient. It doesn't rust and it can be shared by many." ■

COUNTRY PROFILE

Chile's New Approach

Donors that once shunned the

By Cherie Hart

Santiago, Chile—New footsteps echo down the granite halls of La Moneda, the presidential palace in Santiago. Since Chile's elected President, Patricio Aylwin, took office last March, new advisors and fresh policies have set the government on a different course. The former military heads of universities, who held their jobs under General Augusto Pinochet's regime, have been replaced. Copper workers and school teachers who were once blacklisted have returned to their jobs. General Pinochet's daily calendar is no longer broadcast on radio or television. And countries that once shunned the government are now making considerable offers of foreign aid.

Under General Pinochet, only one country—Japan—gave significant grant support directly to the military government, and United Nations agencies provided the only source of multilateral grant assistance available to the regime. Now, however, the French, Italian, Nordic, Spanish, and US governments have pledged over US$100 million in aid to support the country's new social programmes.

The Aylwin government is determined to use this aid to forge a new two-track development policy that mirrors the old government's resolve to promote Chile's industry and technology, while also addressing long-neglected social welfare needs. "We want to solve our health, education and housing problems," says Nicolás Flaño, Director of the Fund for Social Investment and Solidarity, a newly established branch of Chile's Ministry of Planning. "But we don't want to jeopardize our strong economic position."

Creation of the Fund for Social Investment and Solidarity was specifically designed to channel external aid to projects for the impoverished. Already, more than $30 million has been earmarked this year for rehabilitation of health centres and primary schools in poor areas.

The new government is starting from a sturdy financial base. With a stable, export-oriented economy, Chile doubled its exports to $7 billion over the last five years. Its foreign debt declined from a worrisome $23 billion in 1985 to a more manageable $16 billion today. The country remains the world's largest producer of copper, with revenues reaching nearly $2.9 billion last year. Vast reserves of copper, borax, sulphur and nitrate abound beneath the lava fields and rolling dunes of Chile's

Photos by: Cherie Hart/UNDP

CHILE

Modern Santiago provides a dramatic contrast to the run-down urban outskirts of Antofagasta.

...government are now funding new social programmes.

Atacama Desert. The less arid land to the south is rich in deposits of gold, silver, nickel and lead. Chile's Central Valley produces tall stands of fir, carob and larch trees for export, and its fruit crops are shipped to Canada, Europe, Japan and the US.

While General Pinochet's free-market economic policies fostered Chile's remarkable growth and stability, critics say the social price was high. "Much of the cost of the country's economic growth has been borne by the poor," says Mr. Flaño. He adds that five million of Chile's 12 million people are living in poverty. Unemployment runs especially high among 18- to 24-year-olds.

The economy has created two starkly different Chiles. Santiago is a modern metropolis of more than four million people teeming with skyscrapers. Its elegant boutiques display the latest European fashions, and its offices are equipped with computers and sophisticated phone systems. But another Chile exists in rural areas and shanty towns just outside the major cities. Here the poorest live in makeshift houses and send their children to rundown schools. In such areas, there is an acute shortage of hospitals and clinics.

To help finance its social agenda, the government is calling for a substantial rise in corporate taxes. It also urges faster growth in real wages. The change in government has also meant a more direct government involvement in disbursing foreign aid.

"Under the military, many foreign countries dealt with Chile only through voluntary, non-governmental organizations (NGOs) and the universities," says Iván Lavados, Executive Director of the Corporation for International Co-operation, another agency created to channel foreign assistance to development projects. "Now, assistance is coming directly to the government. Resources are then channelled to finance projects at public and private institutions on a competitive basis."

"Under this system," says Mr. Lavados, "only the quality projects and the most effective NGOs will survive. In the past, foreign money was often given to any NGO which worked in opposition to the government. Now, NGOs will be working with the government. We don't want to increase our bureaucracy, so we will be depending on the NGOs to help us carry out our socially oriented projects."

Mr. Lavados credits the United Nations Development Programme (UNDP) with helping set up vital research laboratories to assist Chile's leading industries and in creating a model for disbursing money for worthy projects.

While support to social sectors is the government's top priority, science and technology will continue to be nurtured as in the past—especially in research and development, which helped fuel the country's impressive economic growth under General Pinochet. "An export-oriented economy needs to stay on the cutting edge of science and technology if it is to remain internationally competitive," says Manuel Delano, a leading Chilean economic journalist.

UNDP is playing a pivotal role in shaping Chile's future development, especially in scientific research. The current five-year, $11 million UNDP programme, which was launched three years ago, includes more than 50 projects. Many involve training, research and the promotion of new technology in Chile's mining, agricultural, fishing, and lumber industries.

"The former government requested that we dedicate our entire programme to a single priority—high technology innovation," says UNDP Resident

Chile's Chuquicamata mine is the largest open pit copper mine in the world.

Representative Pierre den Baas, who recently completed his six-year assignment in Chile. "We have helped link the research capabilities of universities with the demands of a dynamic export-oriented economy, and we will continue in that direction, at least for the next two years."

Indeed, the government has even adopted UNDP's criteria for disbursing development aid to research institutions. Now, before a research project can receive assistance, it must first come up with at least 25 per cent financing from a public or private enterprise. "In the past, we wrongly assumed that if we gave money to research, we would automatically end up with innovation," says Mr. Lavados. "We have learned that if no one outside the university is interested, then the research will never come out of the laboratories."

One UNDP-aided innovation that is making its way into the market-place originated at the University of Concepción, 700 kilometres south of Santiago. After three years of experimentation, chemist Juan Bartulin discovered an inorganic compound similar to the composition of bones and teeth. His calcium and phosphate formula, called porous hydroxylapatite, has been used on 200 Chilean patients to rebuild decayed oral bones. Injected into the gum, the new powdered compound allows soft tissue to adhere to it. Within six months, a bone-like structure forms within the gum. In every test patient, reconstruction was a complete success.

The final product can be produced for a dollar a gram, while a comparable product currently marketed in France and the United States costs $100 a gram. "For developing countries, where people are likely to have tooth decay at an early age, this product could revolutionize dentistry," says Dr. Bartulin.

The product could also become a lucrative export. If all goes well, the University of Concepción, which provided $15,000 for the research, will reap the benefits from future sales. The University has created its own business enterprise, called Inversiones Campanil, to market any products discovered through the school's research. One of its first tasks will be to plan a marketing strategy for selling Dr. Bartulin's product to dentists and pharmaceutical companies. In addition to supporting scientific research for the formula, UNDP also paid for three consultants to help the university secure patent protection for the new product.

Meanwhile, 1,200 kilometres north of Santiago, scientists and the business community have joined together on a project to purify waste water in the middle of the driest desert on earth. The Atacama Desert sees rain on average of only once every 20 years. Precious water from the Andes Mountains travels 300 kilometres to reach the 250,000 people in the northern port city of Antofagasta, and the 100,000 residents of nearby Calama.

Water is so scarce in these cities that the local governments permit its usage for human consumption only. This has left several hundred farmers in Antofagasta and Calama with no choice but to grow vegetables with sewage water. Calama has no sewage treatment system, and Antofagasta uses a costly chlorine treatment system that supplies only four hours of water a day to farmers.

Two years ago, scientists from the Institute of the Desert at the University of Antofagasta began to research low-cost ways of recovering more waste water. After securing $77,100 from the University and a consortium of local busi-

Dr. Juan Bartulín adjusts a centrifuge in the lab where he developed a formula for rebuilding oral bones.

Some of the produce in this Atacama Desert market is grown with purified waste water.

Photos by Cherie Hart/UNDP

Solar powered fruit dryers could boost Chile's dried fruit exports.

nesses, it turned to UNDP for additional funds it needed to launch a pilot project. UNDP contributed $110,000 to the effort.

The just-completed pilot treatment plant in Antofagasta consists of four small lagoons. Sewage water is diverted into the lagoons where the sun's rays and spontaneously growing algae change the water's biological properties. Within three to 20 days, the pathogenic bacteria in the waste water are killed.

Plans are underway to expand the plant and pump the water directly to Antofagasta's farmers. A similar plant is being tested in nearby Calama. "If we are able to grow more fruits and vegetables in the middle of the desert, it could change the whole face of our city," says Benito Gómez, Director of the Institute of the Desert. "Right now we are dependent on mining, which is a non-renewable industry. Agriculture is the way to go."

One of the previous government's more farsighted moves was to boost agriculture in a drive to diversify exports away from copper, whose price on world markets has fallen. Grapes and apples have become an increasingly important industry. In fact, fruit exports grew from $40 million a decade ago to over $700 million last year, accounting for ten per cent of Chile's total earnings abroad.

Just south of Santiago, the nation's fruit exports received an important boost after a group of local businesses and UNDP banded together with scientists from the Catholic University of Chile to develop equipment to aid fruit farmers. The result of the $74,000 project: two fruit dryers which run on renewable resources. One is solar powered. The other operates on agro-waste, such as grape vines or corn husks. Fruit is placed on racks in a long sheet-metal tunnel. Renewable energy is used to heat the outside air which is then blown through the tunnel to dry the fruit.

The modest inventions are capable of drying grapes, apricots and apples for export, which earn Chile $20 million annually. While drying fruits in the sun can take as long as 30 days, the new dryers can produce the same results in two days. "These dryers could double our earnings," says Cristian Castro, Director of the Department of Scientific Investigation and Technology at the Catholic University of Chile.

While human welfare tops the list of President Aylwin's new policies, technological innovation, industrial promotion and encouragement of Chile's export-oriented economy remain important priorities. In development planning as in politics, the new government is proving adept at charting a balanced approach free of extremes. ■

BIO-TECHNOLOGY

The New War on the Screwworm

By Mary Lynn Hanley

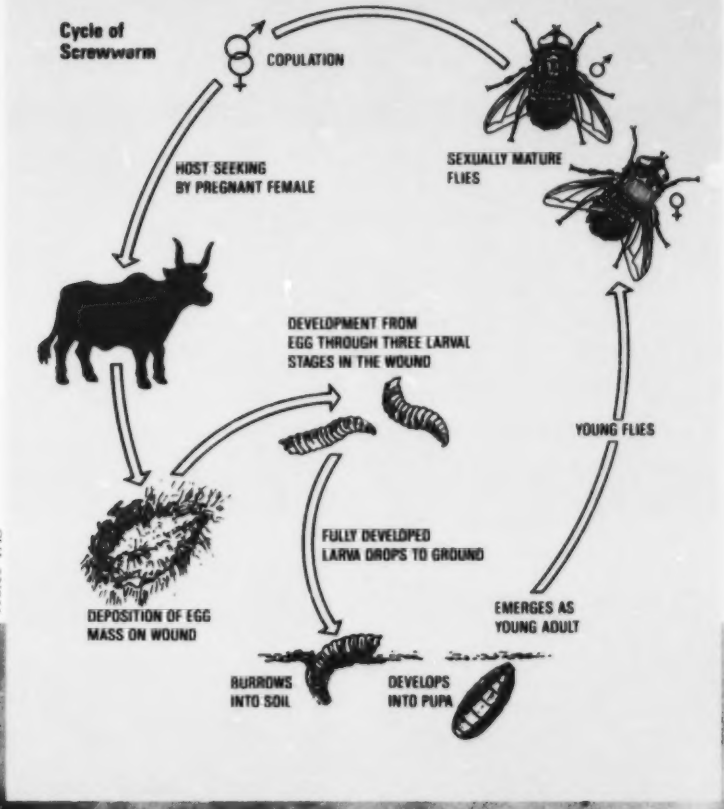
The most feared insect pest affecting livestock in the Western hemisphere has surfaced in Libya, threatening all of Africa.

Zawia, Libya—El-Bashe Ahmed watches the animal health team wrestle several of his fleecy Barbary sheep to the ground.

By now their routine is familiar to the farmer, who raises 350 sheep and half a dozen cows and horses on his 18-hectare farm an hour's drive south-west of Tripoli. Every 21 days for the past several months three veterinary assistants have arrived to spot check his animals for wounds, examine the umbilical cords of newborn lambs and calves, treat sores with antiseptic cream and collect samples of worm infestations.

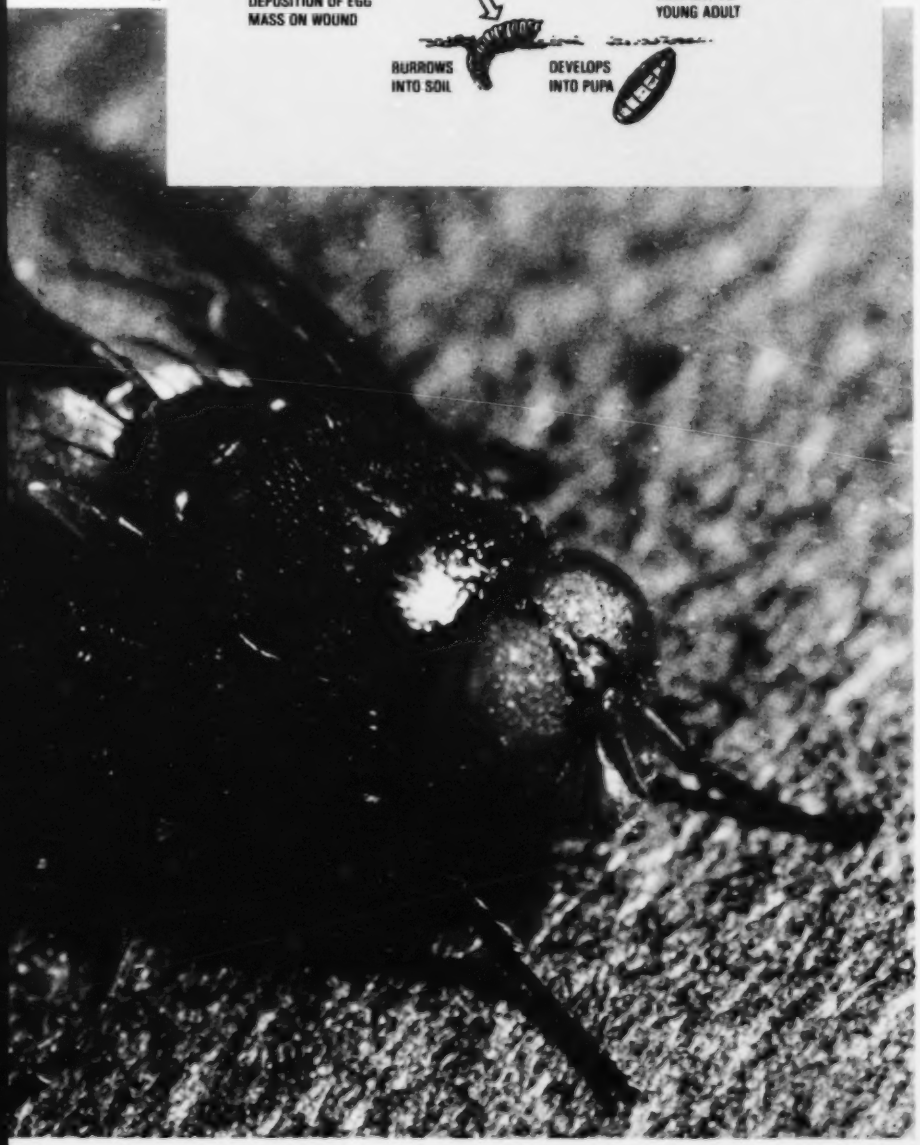
Hard-pressed officials of Libya's Veterinary Services consider the 21-day check-ups anything but routine. For the first time in history, New World Screw-worm—the most feared insect pest affecting livestock in the Western hemisphere—has crossed the Atlantic. In mid-1988 it suddenly surfaced in Libya. By March last year it had spread across 18,000 square kilometres and advanced to within 60 kilometres of the Tunisian border.

The fear is that if not stopped in Libya, the pest will spread across most of the Mediterranean basin and penetrate all of Africa, creating an agricultural and social calamity. Millions of Arab and African farm families could see the livestock on which their livelihood depends wiped out. African wildlife would be seriously threatened, with the possibility of up to 80 per cent mortality among newborn herd animals. Even human beings could fall victim to painful screwworm infestation.


Cycle of Screwworm
COPULATION
SEXUALLY MATURE FLIES
HOST SEEKING BY PREGNANT FEMALE
DEVELOPMENT FROM EGG THROUGH THREE LARVAL STAGES IN THE WOUND
YOUNG FLIES
FULLY DEVELOPED LARVA DROPS TO GROUND
DEPOSITION OF EGG MASS ON WOUND
EMERGES AS YOUNG ADULT
BURROWS INTO SOIL
DEVELOPS INTO PUPA

Source FAO

The life cycle of the screwworm lasts from three weeks in the heat of summer to three months in cooler weather.



"The campaign will be won or lost within the next 18 months," says D. A. Lindquist, an entomologist with the Food and Agriculture Organization of the UN (FAO). Mr. Lindquist, an American, heads the Insect and Pest Control Section of the Joint FAO – International Atomic Energy Agency (IAEA) Division of Nuclear Techniques in Food and Agriculture. "If we do nothing and it spreads to Tunisia, Algeria and Morocco," he says, "it will become a real disaster. I've never seen better screwworm territory."

Mr. Lindquist advises that catastrophe can only be averted by eradicating screwworm in Libya using the Sterile Insect Technique (SIT), and simultaneously ensuring surveillance, treatment of wounds, quarantine and strict control of animal movement. Developed in the 1950s, SIT is responsible for eliminating screwworm from the United States, most of Mexico and several Caribbean islands. The technology involves the release of hundreds of millions of laboratory-reared flies rendered sterile through atomic radiation. When sterile males mate with wild females, the eggs fail to hatch and the population soon dies out.

One big hurdle has already been overcome. The United States has passed special legislation permitting sterile screwworm flies from the Mexican-American reproduction centre in Tuxtla Gutiérrez, southern Mexico, to be sold for the North African screwworm campaign. This is the only facility in the world producing them. Washington has also relaxed the ban on travel to Libya for US citizens working for the UN on screwworm control and eradication.

Libyan farmer El-Bashe Ahmed with sheep he is fattening for a feast day.

Photos by Mary Lynn Hanley/UNDP

A veterinary team applies insecticide to a flesh wound to prevent screwworm infestation.

The next step is to raise the tens of millions of dollars eradication is expected to cost over the next two years. If not eradicated in Libya, the cost of merely protecting the 70 million head of livestock in all of North Africa is estimated at US$250 million yearly.

The inspection of Mr. Ahmed's flocks is part of an emergency control operation mounted by the Libyan government with support from the United Nations Development Programme (UNDP) and FAO. "Last year screwworm infested one of my sheep," says Mr. Ahmed, gazing with satisfaction at the livestock he is fattening for an upcoming feast day. "But we saw the larvae at an early stage. The animal was treated and recovered."

Before its appearance in Libya, the screwworm, which favours a warm, moist climate, had been confined to parts of Latin America and the Caribbean. According to M. Abusawa, Director of Libya's Veterinary Services, it is thought to have hitched a ride to Libya on live animals imported from South America.

While experts have been unable to determine the pest's point of entry, little time was lost in preventing its spread. Within three months of its confirmation, landrovers had been purchased and teams recruited and trained to collect sample worms for tests and treat wounds in all warm-blooded animals in the infested and neighbouring areas. "We now have 92 teams," says Mr. Abusawa, whose government has already put $14.5 million into the effort. "This is not just a Libyan problem. I am sure that if we stopped the control teams just for one month there would be a calamity."

Cochliomyia hominivorax, the Latin name for screwworm, literally means "devourer of man." The first recorded case described the infestation of a human in Cayenne, French Guiana in 1858. The pest will attack any warm-blooded animal, but most of its victims have been livestock. Before 1982, when screwworm was eradicated from the US and most of Mexico through SIT, losses in the US alone had been costing ranchers $140 million a year.

A little larger than the common housefly, the female screwworm fly lays its eggs wherever an animal has a break in the skin. Livestock often have open sores which are suitable breeding grounds. The wounds may be on the umbilical cord at birth, or as a result of having been sheared, de-horned, castrated or branded, or even from tiny tick bites. Hatching within 24 hours, the screwworm larvae begin feeding on the wound's secretions, burrowing deep down into their luckless host's flesh. As it worsens, the infestation emits a putrid odour which attracts other females ready to lay their eggs.

Treating infested animals with insecticide will kill the larvae at an early stage. Otherwise, they will feed for five to six days, reaching a length of about 3.5 millimetres. Then they drop to the ground, burrow into the soil, pupate and emerge as adult flies a little less than a week later. Within a few days pregnant females of this new generation begin searching for fresh wounds in which to begin the 21-day cycle all over again.

Treating a newborn calf's umbilical cord.

Area of screwworm infestation

Without treatment an animal will usually die within two weeks. While livestock treated with insecticide recover, their susceptibility to other diseases increases because they have been weakened. Milk and meat production drop, and hides and skins are damaged. However, there is no danger that meat from a slaughtered animal which has been infested with screwworm will be contaminated. The larvae remain only in warm flesh.

Treating animals with insecticide, imposing quarantine and controlling animal movements are all essential for curbing the spread of infestation. "In Libya, you've got wild animals and dogs that run around loose," says Mr Lindquist. "If you put one animal that's infested on a truck it could move 500 kilometres in one day." The pest is also extremely mobile on its own. It can fly up to 290 kilometres in less than two weeks.

A Libyan multi-media campaign to inform farmers and the general public about how to cope with screwworm appears to be getting through. A sheepherder encountered in the desert said he had learned about the pest through TV. Still, there is a need to increase the involvement of farmers, especially those who keep only a few animals on the side and have little incentive to apply scrupulous control measures.

Mr. Lindquist feels that it may also be necessary to change animal management practices. "Here in Libya sheep shearing takes place when the screwworm population is increasing," he says. "Lambing occurs when the population is at its peak. If the screwworm stays here, it will be necessary to shift the timing of these events, just as was done in the Americas."

With $250,000 in support from the UNDP, FAO has provided specialists, spraying machines, vehicles, insecticides and medicines for the Libyan control campaign. In addition, it has alerted neighbouring countries to the problem and organized a course in screwworm identification and control for veterinarians and technicians from North Africa.

UNDP and FAO are also assisting in mobilizing funds for eradication. Preparatory activities are already underway with $3 million in funding from UNDP, FAO, IAEA, the International Fund for Agricultural Development (IFAD) and the Libyan government. The SIT operation will require the purchase and jet transport to Libya of up to 100 million sterile flies a week for two years. Funds will be needed as well for additional international specialists, training, equipment and administrative support.

Mexican entomologist Arturo Martinez, Chief Technical Advisor to the Libyan screwworm control project, was previously in charge of developing new strains of flies at the Mexican-American facility in Tuxtla Gutiérrez. He warns that the plant will require new equipment and added personnel to produce enough flies to meet the needs of the Libyan campaign.

Once produced, and while they are still in the pupal stage, the sterile flies will be loaded into thousands of lunch-box size cardboard cartons for the air lift to Libya aboard a jet equipped with a climate-controlled cargo area. Two or three flights a week will be required throughout the two-year eradication campaign.

Upon landing, the pupae will be transferred to temperature-controlled tractor-trailer units at the airport. The next day, in the cool of the early morning, the emerging sterile flies will be air-dropped from small planes along predetermined grid patterns three kilometres apart. Just before the drop, the boxes will be opened, releasing 1,000 to 2,000 sterile flies per square kilometre to seek mates in the affected areas.

Leaving nothing to chance, FAO and IAEA experts have already determined the sexual compatibility of Mexican and Libyan screwworms. "Libyan screwworms were flown to a quarantine laboratory in Fargo, North Dakota," says Mr. Lindquist. "There, they were reared and mated in the lab and subjected to pheromone tests and DNA analysis. We found no evidence that there would be a mating problem."

A pledging conference for screwworm eradication held by FAO and IFAD in Rome in July, and attended by representatives of 26 nations and ten international organizations, resulted in commitments of $55.7 million for the campaign. This will enable full-scale SIT operations to begin without delay and it is hoped that further contributions will be made as the programme progresses.

"We have to stop it," says Mr. Abusawa. "It is not just for Libya. The cost of doing it today will be nothing compared to what it will be tomorrow." ■

ENVIRONMENT

The Greening of Cape Verde

The fishing industry accounts for 83 per cent of exports.

By Daphne Topouzis

Praia, Cape Verde—In 1460, when the first Portuguese seamen landed on these islands—located 500 kilometres off the coast of West Africa—they named them the Green Cape because of their lush colour, and settled in nine of the archipelago's 14 isles. The new colony prospered due to its location as a way station in the trans-Atlantic slave trade.

But a series of droughts in the 18th century devastated Cape Verde's environment. Desertification and soil erosion decimated food crops and as much as 44 per cent of the population died of famine. The islands' tall rugged mountains, their slopes whipped by harsh desert winds from Mauritania, were stripped of vegetation. For hundreds of thousands of Cape Verdeans, the only alternative was to emigrate to Angola, São Tomé, Senegal and later to Europe and the United States.

Photos by Ronald Barboza

The islands' rugged mountains, whipp d by harsh desert winds from Africa, were stripped of vegetation in the 1700s.

The government expects that an additional 75,000 hectares will be planted over the next ten years.

CAPE VERDE

Today, the spectre of drought continues to haunt the archipelago. But Cape Verde has begun to rebound by relying on the industriousness of its people, massive inflows of foreign aid and creative development strategies.

With help from the United Nations Development Programme (UNDP), the United States and other donors, Cape Verde has recently launched an ambitious programme to fight desertification, develop water resources and improve living conditions for the archipelago's 400,000 inhabitants.

In the past 15 years the country has literally been transformed. Nearly 20 million trees have been planted as part of the government's reforestation and soil protection programme. Per capita income has nearly doubled from US$270 in 1980 to $500 in 1987. Life expectancy has increased from 46 to 64 years. Malaria has been eradicated. Other diseases, such as tuberculosis and typhoid, which claim a heavy toll in most African countries, are practically non-existent. According to UNICEF's State of the World's Children, by 1995 Cape Verde will be the second African country after Mauritius to reduce the number of deaths of children under the age of five to under 70 per 1,000 live births.

Contributing to Cape Verde's boom are some 600,000 nationals living abroad who send money back to their families or who return home to launch new businesses. The fishing industry accounts for 83 per cent of Cape Verde's exports.

"Considering its resources, there is no doubt that Cape Verde has achieved a small economic miracle," says Miguel da Graca, UNDP Resident Representative in Praia, the archipelago's capital. Even though Cape Verde is critically dependent on foreign aid, the government has won respect worldwide for using it prudently and constructively. "We carefully identify our needs and establish a frank dialogue with our donors," says Jose Luis Monteiro, the country's Director General of Co-operation. "Nothing is done in haste and no project is agreed upon without a consensus."

While the dry desert lands are steadily advancing in most Sahelian countries, in Cape Verde they are receding. Since 1975, the forest area of the islands has increased from 3,000 to 45,000 hectares. The government predicts that in ten years an additional 75,000 hectares will have been planted and that the islands will become self-

sufficient in wood for fuel. Cape Verdeans are determined to make their country live up to its name. At the start of rainy season, men and women leave their homes and offices for the outlying fields, with the goal of planting millions of trees in a one-week period.

Reforestation reaches the most arid and remote parts of the islands. A case in point is the valley of São Joao Baptista on the island of São Tiago. Here, the UN Sudano-Sahelian Office is assisting the 5,000 inhabitants plant 60,000 trees annually. It is also helping them build walls along the steep valleys to prevent rain from draining into the sea. Driving through the region, one sees hillsides dotted with young acacias, a sign of hope against a backdrop of scorched, volcanic terrain.

The greatest obstacle impeding development of the valley—and most other areas of the archipelago—is lack of water. "Water exists in Cape Verde but not where it is needed," says James Verge, an expert of the UN Department of Technical Co-operation for Development who is assisting the Committee for Water Resources. "Most of the water is underground, and the complex volcanic geology of the islands makes it extremely difficult to exploit." In fact, some islands rely on desalination for fresh water.

With support from UNDP, a much-needed master plan for water resources management is being drawn up and a separate data base on water-related projects is being established. Additional support is being extended to AGRHYMET, the regional agro-hydrometeorological programme which UNDP and a West African intergovernmental organization, known as CILSS, are assisting.

Almost everywhere one turns in Praia, signs warn against wasting water. What little is available is hard to get. Since it became dependence, Praia's water shortages have become more acute because of rapid population growth. Sixty thousand people live here today. According to government estimates, by the year 2000 that figure will double.

"New communities are literally sprouting overnight," says Pedro

Women are typically seen carrying water basins for miles.

Bettencourt, the national project director of a UNDP, UNCDF and Habitat effort to improve living conditions in three of Praia's slum areas. Some signs of progress are already evident. New schools have been completed and more are under construction. A market place has opened and drainage and sanitation systems are being installed. Women are being trained in water conservation, hygiene and maintenance of latrines.

But in spite of Cape Verde's accomplishments, the country still faces high unemployment, declining agricultural production and a drop in foreign aid.

"Cape Verdeans are very conscious of the dangers inherent in the country's dependence on foreign aid, and are trying to become more self-sufficient," says Mr. da Graca. With this in mind, the government has decided to open the economy and encourage more foreign investment in such sectors as tourism and transportation. Many here hope that these and other economic reforms will help Cape Verde create more jobs, greater opportunities and a greener horizon. ■

Daphne Topouzis *is a Contributing Editor of Africa Report.*

UNSO is helping islanders build walls along steep valleys to catch the rainfall.

Photos by Ronald Barboza

Many of the region's sugar mills are in need of modernization.

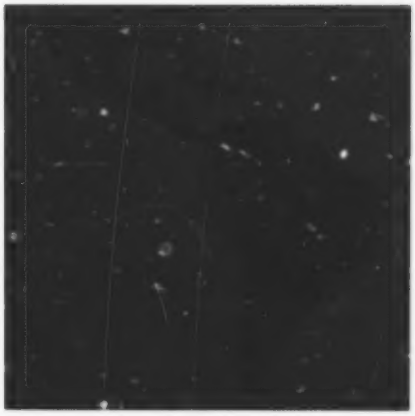
More than Something Sweet

Searching for new formulas to revive Latin America's ailing sugar industry.

By Mary Lynn Hanley

Mexico City, Mexico— Just about everyone likes sugar. In coffee, tea, soft drinks, candy and deserts, or as an ingredient in dishes ranging from spaghetti marinara to barbecued spare-ribs. The average person consumes 20 kilograms a year.

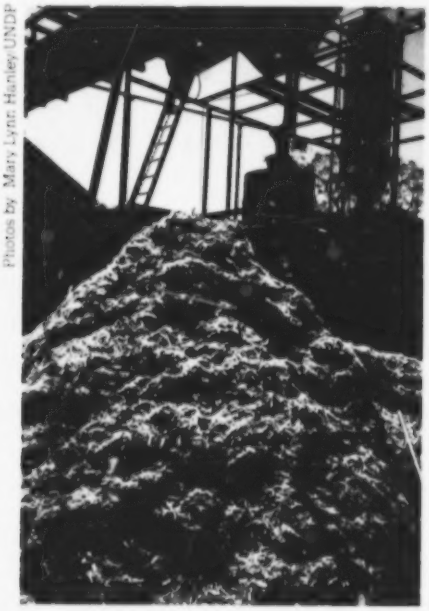
Nearly 60 per cent of the world supply of sugar comes from sugar cane, half of which is produced in Latin America and the Caribbean. Fifteen million people in the region are dependent upon the sugar cane economy. The industry provides direct employment to over two million persons.



■ **Members of GEPLACEA.**

But times for sugar producers in the region are anything but sweet. Export earnings and profits are the lowest in history. Mills are being closed and workers laid off, intensifying poverty in this already depressed region.

"Since 1970 there have been a lot of changes in the international market," says José Antonio Cerro, Executive Secretary of the Group of Latin American and Caribbean Sugar Exporting Countries (GEPLACEA), which receives support from the United Nations Development Programme (UNDP). "On one side you have all the campaigns against sugar and on the



Photos by Mary Lynn Hanley/UNDP

Bagasse, a sugar by-product, is used to produce pulp, paper and animal feed.

other you have the substitutes."

Mr. Cerro notes that world consumption, which once grew at a rate of three per cent a year is now growing at less than two per cent annually. This is due largely to competition from natural substitutes, such as high fructose corn sweeteners, and artificial non-caloric products, including saccharine and aspartame. He also cites the depressing effect of the protectionist policies of industrialized countries on the Latin American and Caribbean sugar market. Some countries provide their sugar producers with subsidies four times the international sugar price.

"The United States has decreased imports from 1.5 million tons in 1981 to one million tons in 1988," says Mr. Cerro. "The European Community has switched from being an importer to an exporter of four to five million tons yearly."

GEPLACEA is concerned with the industry's ability to survive. Headquartered in Mexico City, the organization advises members on marketing and provides training and assistance in modernizing the sugar cane industry. Activities include the introduction of new energy-saving production technologies, and promotion of intercropping in the cane fields.

But producers can no longer survive by producing sugar alone. For that reason, GEPLACEA is also promoting "diversification" — the use of the various parts of the sugar cane plant, and the by-products of sugar production, to generate new sources of income. This is the key to the industry's long-term viability, according to Mr. Cerro. "The problem is not having a single crop but having a single product," he says.

Diversification offers more than 100 possibilities. Alcohol, a traditional by-product of sugar manufacturing, has long been used for beverages, perfumes, and pharmaceuticals. Over the past ten years it has also proved to be an excellent fuel and fuel additive. Brazil, for example, distills over ten billion litres of "gasohol" annually. Animal feed is produced from cane wastes by several countries, including Brazil, Colombia, Cuba, the Dominican Republic and Mexico. Bagasse, the bulky material which remains once sugar cane juice is extracted, is being transformed into pulp, paper and fibreboard.

Through alcohol-based chemistry, sugar cane derivatives are being substituted for more costly and non-renewable petroleum resources to manufacture acetic acid, ethylene, butanol and plastics such as polyvinyl chloride. Sugar cane wastes are also yielding numerous products for industrial use, including baker's yeast, citric, lactic and fatty acids, monosodium glutamate and solvents.

Cuba has been a pioneer in diversification. The government began research into sugar cane derivatives in 1963 and now has more than 40 industries using sugar cane by-products as raw materials.

"I think our main achievements have been in the development of a new technology for producing newsprint from bagasse," says Nancy Fernández Rodríguez, Director of the "CUBA 9" project, which has been carrying out research and development with UNDP support since 1974. "We use high-yield pulp not only for producing newsprint, but also for producing corrugated boxes and writing paper." Five mills currently transform bagasse into nearly 300,000 tons of pulp, paper and fibreboard yearly, reducing imports and helping to compensate for Cuba's lack of forests.

Ms. Fernández is also enthusiastic about a new technology for producing an especially soft and fluffy pulp for sanitary napkins and babies' diapers. "This is the first time these are available in the world from bagasse," she says.

Cuba has also given high priority to producing feed for cattle, pigs and poultry from sugar by-products, since the country's pastures yield little during the dry season. This not only conserves grain for human consumption but reduces pollution. Formerly, effluents from sugar cane processing ended up contaminating soils, coastal fishing grounds and underground water reserves.

Overall, Mr. Cerro sees diversification as a model for development which makes use of a renewable resource while promoting environmental conservation. It results in more domestically produced goods, reducing imports and saving foreign exchange. It increases opportunities for self-sustained national economic growth and strengthened regional co-operation. And it creates new jobs and higher incomes, making people's lives a little sweeter. ■

Farmers in Capiz install the main tank of the biogas digester, which will be coated in ferrocement.

AGRICULTURE

Organic Farming Gains Ground in the Philippines

By David Kinley

Mangubilan, Philippines—A strange rubber hose emerges from the ground and runs across the farmyard to the otherwise normal-looking home of Domingo Besinio, a farmer in this isolated hamlet in Capiz Province. Several times a year Mr. Besinio's rice fields are covered with an odd, red-green algae growth which he vigorously works into the soil. Often, he is seen stirring a brown syrupy mixture brewing inside a concrete cylinder half buried in the ground near the house. Fruits and vegetables that neighbours have never grown and rarely tasted proliferate on the property.

It isn't easy supporting a family of seven on less than one hectare of land. But for Mr. Besinio and over 100 other small farmers in Capiz, 300 kilometres south of Manila in the Visayan island group, life is taking a dramatic turn for the better. The change came when the Capiz Development Foundation, Inc. (CDFI), a local non-governmental organization, introduced them to

PHILIPPINES

David Kinley UNDP

Methane gas from the digester is piped directly into the Besinio home to fuel an incubator.

"integrated farming." CDFI, in turn, received help from the Partners in Development Programme, which awards small grants to innovative grass roots groups. It was started in 1988 by the United Nations Development Programme (UNDP).

Based on over ten years of experiments conducted by Capiz-based farm innovator Mamerto Fantilanan, participants in the CDFI's training effort are diversifying their rice farms into multi-product operations. The farmers are not only earning a better living, but practicing new techniques ensuring more sustainable farming systems. A key component of the "integrated farming" strategy is a newly designed, inexpensive, and simple-to-maintain biogas digester. Utilizing the waste of a few pigs, the digester produces methane gas for cooking and other uses, and a nutrient-rich sludge—that brown syrupy mixture used by Mr. Besinio—which can replace expensive chemical fertilizers.

Two years ago, with advice and a small loan from CDFI, Mr. Besinio constructed his own biogas digester out of ferrocement. He built a simple egg incubator out of wood and, with a small burner, used his methane gas supply—piped through a rubber hose into his house — to hatch ducklings. Today he has over 50 ducks which he regularly markets at a handsome price. He was also trained to grow eggplants, soybeans, onions, sweet peppers, high-yielding rice and cacao. To fertilize the crops he uses the sludge produced by his digester, supplemented by the duck droppings and azolla. A nitrogen-fixing algae grown in rice paddies, azolla was first developed to fertilize crops in China.

"I used to have to buy six sacks of chemical fertilizer to produce 50 to 75 sacks of rice paddy," says Mr. Besinio. "Now, with the sludge from the digester and the azolla, I no longer have to buy chemical fertilizer. My rice production is much higher too. I'm producing up to 125 sacks each crop." Given his higher income and lower costs, Mr. Besinio reports that he can easily repay his CDFI loan. He's investing his savings in a better education for his five children.

About an hour's drive from Mangubilan, in the village of Dumalag, is the small farm of Marcos Flamiano, another graduate of the CDFI ten-day training programme. Not immediately convinced that he should adopt integrated farming on his entire property, Mr. Flamiano has devoted half his plots to the new approach alongside the other half employing conventional rice monoculture.

"My main problem so far has been that some of my pigs died from cholera, so I'm getting less sludge from my digester," says Mr. Flamiano. "But I'm buying a lot less chemicals now. After my next harvest I'll decide whether to completely adopt the new approach."

Such field-level experimentation has been the hallmark in the evolution of "integrated farming" by Mr. Fantilanan. His half-hectare farm, which supports dozens of varieties of fruits, fowl, fish and vegetables—now serves as the primary CDFI training centre, with small grants from the Food and Agricultural Organization of the UN and other donors.

Back in the mid-1960s, Mr. Fantilanan left his job as a postmaster in Capiz to dedicate his life to finding organic alternatives for improving small farm production and incomes. "The chemical-intensive farming developed in the West just isn't appropriate here," says Mr. Fantilanan. "Our experiments here are proving that organically-based systems offer small farmers the option of being more self-sufficient and earning more money."

Mr. Fantilanan first started experimenting with natural fertilizers and biogas technologies in the late 1970s when he learned of a fixed-dome Chinese digester constructed in Capiz with support from the US Peace Corps and the Provincial Governor, Cornelio

Philippine inventor Mamerto Fantilanan developed the improved biogas digestion system used in Capiz.

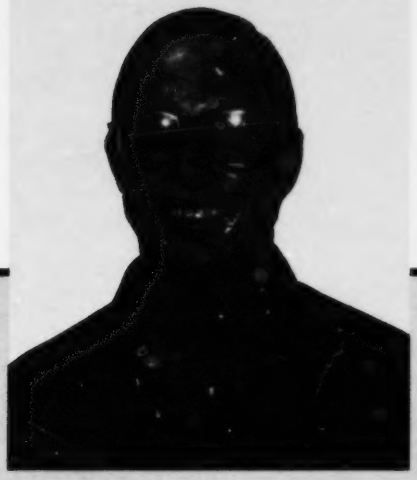
David Kinley/UNDP

Don't Forget the Urban Poor

Villareal Jr. But Mr. Fantilanan found the Chinese design deficient—it had to be cleaned out often—and set about designing a new continuous flow digester that was virtually maintenance free. Working with ferrocement, Mr. Fantilanan eventually came up with a new design incorporating a five metre long sealed cylinder buried at a 45 degree angle underground. The total construction cost is about US$400, a price which the first 12 farmers who took on CDFI loans claim can be repaid in two or three years.

The organization promoting the "integrated farming system" in Capiz was first set up in 1984 by Governor Villareal and the Archbishop of Capiz, Antonio Frondosa, after a devastating typhoon struck the province. "Initially we founded CDFI to assist in low-cost housing reconstruction," says Archbishop Frondosa. "But when we really got into the communities to assess their longer-term needs, we began to focus on ways to generate more income. That's when integrated farming moved to the forefront of our activities."

Already, more than a dozen farmers in the province are using biogas digesters, eight of which were funded by UNDP. Mr. Fantilanan's training centre is spreading the word of integrated farming to hundreds of others. And now there are plans to assign at least two United Nations Volunteers to carry out extension work in dozens of communities throughout the province. They are sorely needed. So is more money to expand the programme. "Farmer requests for biogas plant loans are already beyond the capacity of our small foundation," says CDFI Vice Chairman Villareal. ■



Walter Arensberg.

"Speaking Out" is open to readers who wish to offer clear, well-supported positions on development issues. Contributions do not necessarily reflect the views of UNDP.

By Walter Arensberg

Washington, DC—Tropical deforestation endangers the world's climate, reduces biological diversity, degrades watersheds, and impoverishes soils and water resources. This global issue has shot to the top of environmental agendas in Europe and North America and is gaining ground in developing countries as well.

But the vanishing tropical forests must not fill our whole field of vision, for the developing world's growing urban poverty and deteriorating urban environment demand equal attention. To the mayors of Manila, Mexico City, Lima or Lagos, the long-term consequences of losing forests can't compare with the immediate and relentless pressures of managing their cities.

World Resources 1990-91, the latest in a series of biennial reports issued by the World Resources Institute in Washington, DC, underscores the magnitude of the developing world's urbanization and population growth trends. Developing countries were only 17 per cent urban in 1950, but the urban share doubled to 34 per cent by 1990. And the real urban boom is yet to come: between now and 2025, the developing world's total population is expected to increase by three billion people, while the share of city dwellers in that population rises to 57 per cent.

These demographics are already overwhelming many cities in the developing world, whose national governments are hard pressed to meet mounting urban demands for more jobs, housing, transportation, education and basic health programmes. Urban conditions are deteriorating markedly due to air pollution and growing shortages of clean water and of treatment and disposal facilities for sewage and solid wastes. Despite major donor commitments to such programmes as the UN International Drinking Water Supply and Sanitation Decade, governments have been unable to provide services fast enough to keep pace with population growth. In short, urban conditions in the developing world are getting worse, not better.

While there is no shortage of prescriptions for addressing these problems, all involve vast sums. There's a danger that in this era of specialized environmentalism and "Green" politics in the industrial North, the unfashionable and costly task of relieving the developing world's urban poverty and pollution could lose out. In the United States, at least, environmentalists concerned with the developing world are paying scant attention to the gritty problems of the urban scene. Policymakers tend to earmark what little "Green" money there is on rural rather than urban environments.

In a time of limited resources, must we choose between cities and forests? No, because dynamic development in the developing world depends at least as much on the productivity and health of its cities as on the sustainable use of its rural resources. What we need for the future are strategies for action that don't pit urban and rural environments against each other, but promote both for the benefit of the whole nation. ■

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